Harrison REMC
Electric Service Quality Rulemaking
Data Request

Reliability:
The area of reliability will include the examination of sustained outages, momentary outages, restoration of service following a sustained outage and power quality.

1. Is your utility participating in any EPRI (or other organizations) research projects relating to reliability or other service quality issues? If yes, please describe the project(s) you are involved in and how it relates to reliability issues addressed in this section of the data request.

   We are not currently participating in any research projects. Hoosier Energy, our G&T is a member of EPRI and we keep up with the research through them.

Service Interruption and Outages

Sustained Outages:

1. How does your utility identify an outage? At what point does your utility consider an outage a "sustained" outage versus a "momentary" outage?

   An outage is any interruption of power longer than a recloser operation. If the power is out only long enough for the equipment to reset we consider that a blink. Any interruption longer than that is a sustained outage.

2. Please describe the response process once an outage is identified. Has your response process changed in any way over the past 5 years? Please explain those changes. What follow-up is done after service has been restored to determine that an individual customer, once again, has electric service?

   During regular business hours employees take outage calls from customers and enter them in our computer system. Once they have been entered our dispatcher gives one of our crews the information by radio. If the outage is after normal hours it is taken by our after hours answering service. This is a local service that will then contact our standby crew by pager. Once the standby crew is in the truck they communicate by radio (our after hours service has a radio just as our dispatch does). A supervisor is always on call to answer any questions or dispatch more crews if the situation warrants.

   Once power is restored crews check the meter to make sure service is restored. In larger outages some of the customers are called to make sure they are back on.

3. Under what conditions or circumstances does your utility report an outage to the Commission? Since January 2001, how often have you reported an outage to the Commission? How often did you provide updates on the outage and the restoration of service?
   We have not reported an outage to the Commission in a few years. The size and length of an outage determines what and when we would report and outage.

4. Outages resulting from major weather events can somewhat be anticipated, please describe the weather event outage response from the time a weather situation is known or anticipated to exist through the time the last customer is brought back online. Please describe any facilities and/or procedures that are specifically used in anticipation or during a major weather event in case of widespread outages. Are the facilities and/or procedures different depending on the type of weather event, for example tornado conditions versus a potential ice storm? Are there non-weather related outage situations when these facilities and/or procedures are used?

   Harrison REMC monitors current weather and forecasts. Predicting what will happen is virtually impossible, but we do strive to be prepared. When bad weather is forecast more than one standby crew may be put "on ready" if it is predicted to hit outside normal business hours. Contractor crews are also put on alert in these situations. If the forecast is extreme the statewide office of REMC's is contacted. Harrison is part of an alliance that helps each other when reasonably possible in cases of emergency.

   Preparation is not much different because of the type of impending weather. Heavy ice or snow forecasts may mean contact with pole suppliers in case they are needed.

5. What other government (local, state, federal) agencies or organizations **must** your utility interact or communicate with during outage situations? Specifically, are there other agencies or organizations that you utility is required by law or regulation to report to or communicate with during outage situations?

   Unless the situation was declared a federal or state emergency I don't believe there are any agencies we are required to report or communicate with.

   We work with several local and state agencies as a matter of routine during outages. Local, county and state police our involved in certain outage situations (automobile accidents, lines down etc.) County and state highway personnel are often involved. Local fire departments and EMS are also frequently involved.

6. Are there other agencies, organizations or companies that your utility typically interacts or communicates with during critical outage situations? Please describe the circumstances and types of interactions or communications that occur.
   In addition to the organizations listed above other utilities (Hoosier Energy, Cinergy, other coops) may be contacted during critical outages.

7. What is the policy concerning the use of service crews from other utilities? Has the availability of crews or the willingness of other utilities to make crews available become more limited in recent years? Are non-utility crews being used or considered more routinely than requesting crews from neighboring utilities?

   Harrison REMC has an agreement with the other cooperatives in the state to provide crews during critical situations. We have not had to use outside crews for a few years, but I do not anticipate any problem with their willingness to help should the need arise. We have never used non-utility crews to actually restore outages. We do use non-utility crews (primarily tree trimmers or excavating contractors) to help, but they do not contact electrical equipment.

8. What type of information does your utility typically gather/report/analyze regarding sustained outages? How is this information used in the utility?

   Date, time, duration, number of people affected, cause, equipment involved and repair and response time are the major types of information we gather on outages. All this information is logged in our computer (we have outage history back to 1984), and kept for future reference.

9. Does the utility attempt to quantify the financial costs of outages to customers and local communities? If so, please explain how this is done.
   No.

Momentary Outages:

1. Does your utility identify and track momentary outages? How is a momentary outage identified and/or defined?

We identify some of the momentary outages with substation inspection and down line recloser inspection. This can only be done with some of the newer recloser controls.

2. What type of information does your utility typically gather/report/analyze regarding momentary outages? How is this information used in the utility?

   In the locations we have the equipment we can gather the date and time of the momentary outage. We use this, in addition to customer calls to help pinpoint the cause of the momentary problem.

3. Other than the duration of the outage, are there operational or characteristic differences in a sustained outage versus a momentary outage?

   Yes, sustained outages generally are easier to identify the problem area or piece of equipment. Causes of momentary outages are hard to identify and locate. It takes considerable time to

pinpoint an exact cause of a momentary outage on long rural lines. Occasionally we have to obtain special equipment to find the cause of a momentary problem.

Performance Measures and Statistics

1. Typical reliability performance statistics include SAIDI, CAIDI, SAIFI, etc. Does your utility routinely calculate these statistics? How is each of the variables in each of the calculations defined? Are these statistics calculated as part of your outage management system or through some other means?

   Yes, we calculate SAIDI, CAIDI, and SAIFI.
   CAIDI- Customer Average Interruption Duration Index-Represents, on average, the interruption duration for electric customers who actually experience an interruption.

   SAIFI = System Average Interruption Frequency Index – Represents, on average, the number of times an electric utility customer may be interrupted during the year.

   SAIDI = System Average Interruption Duration Index – Represents, on average, the duration of interruptions when spread across the entire electric customer base.

   They are calculated from our in-house outage database.

2. Are there other reliability statistics your utility calculates? What are they? How are they calculated? How are the variables used to calculate them defined? Are these statistics calculated as part of your outage management system or through some other means?
   No

3. Does your outage management system calculate other reliability statistics that your utility does not routinely review? What are these statistics? How are they calculated? How are the variables used to calculate them defined?
   No. The statistics listed above are what we normally review.

4. Reliability statistics are often calculated excluding storms or other major outage events. What are the advantages and disadvantages to excluding storms or other events? Do reliability statistics typically calculated by your utility include or exclude storms or major outage events? If these events are excluded, how do you determine when to exclude an outage event? How do you define the different levels of outage events?

   The advantages of including the major storm are that your statistics have an accurate picture of your outages. The disadvantage is one major storm can affect numbers for several years. Some people feel this is not an accurate representation of what kind of job we are doing because we could not have prevented a severe storm.

Harrison REMC includes major storms in our outage statistics.

5. How do service territory differences (e.g., rural versus metropolitan, high industrial concentration versus more residential) affect the calculation of reliability statistics? What statistic, if any, is most indifferent to the service area characteristics, in other words, what statistic(s) would most likely allow relevant comparisons among a wide variety of utility types?

   Rural territories probably involve more lines not accessible by truck, meaning they must be walked, increasing response/repair times.

6. Can the calculation of reliability indices be standardized among Indiana utilities? Please explain how that might be done.

   Perhaps not, as indicated by our response to the last question as an example. We feel stats could be standardized only if everyone followed the same parameters. I'm not sure if all utilities have or should have the same software, or what difference that may make.

7. Should utility size or other characteristics be taken into consideration when evaluating the reliability statistics from a company?

   We don't feel the size of the utility should make a big difference when evaluating stats, but may make a difference in the development and nature of the stats. I would be interested in the differences between types of electric companies (Muni, IOU or co-op).

8. Are performance evaluations and the resulting compensation for any individual, groups of individuals or divisions of the utility tied to reliability statistic results? Please explain what reliability statistics are used and who is evaluated based on the results of those statistics. How are the acceptable levels of performance set and what are those levels?
   Some of our employees have an incentive program as part of their compensation. One of the factors in this program is the response time to an outage.

Worst circuits

In order to prevent utilities from having "pockets" of poor service reliability, some state commissions require utilities to report the top 10-25 worst circuits and then address those problem areas.

1. Are there areas of your utility's service territory that are more prone to outages, either sustained or momentary, or other reliability problems, such as power quality, than others? How does your utility address this type of problem?

   Circuit configuration (loop vs. radial), route of the line, number of trees, etc. all makes a difference in reliability, blinks or overall power quality.

Anytime we are having problems we patrol the area and try to find the root cause.

2. What are the advantages of identifying the top worst performing circuits of a utility?

   Identifying these areas helps determine where maintenance or upgrades need to be done.

3. What are the disadvantages of identifying the top worst performing circuits of a utility?

   While this may show you where problems are it may not show areas they could get more customers helped for the same amount of money.

Power Quality

1. Based on your utility's interaction with its customers, is power quality an important concern of your customers? What aspects of power quality are of particular concern (voltage sag, high or low voltage, voltage spikes and transients, flickers, surges, harmonics, other)? Please explain. Are there typical types of customers or customer classes that voice a greater concern about power quality than others? Please explain. How has your utility addressed these concerns?

   Any aspect of power quality that is important to our customers becomes important to us. Power quality issues seem more important to commercial and industrial customers than the average residential customer.
   We have access to several types of monitoring equipment if a customer feels they are having a power quality issue. Many C&I customers have their own monitoring equipment as well.

2. Does your utility have any program or plan in place specifically addressing power quality issues? Please explain. How have these programs or plans changed over the last five years?

   Whenever a customer calls in with a power quality complaint a service order is generated. This is passed on to the appropriate individual, and then some action is taken. The customer is met or we call them with our results. This has changed very little over the past 5 years.

3. Does your utility collect/track any type of power quality related data? If so, what data is collected and how is it used by the utility?

   We receive substation reports bi-monthly from our G&T. These reports have a small amount of power quality data. We also file the specific monitoring we do for individual customers. This data is used for future reference.

4. Is power quality data used as a performance measure for compensation for any person(s), groups and/or divisions in your utility? Please explain what data is used and why.

   No.

Leading Indicators

While it's important to restore service as quickly as possible following an outage, when practical, it is better to prevent the outage from occurring.

1. What are good leading indicators of possible service outages? Does your utility routinely monitor specific aspects of the electric operations or system with the goal of preventing service outages? What do you monitor and why?

   A history of certain pieces of equipment may be an indicator of a possible outage. We monitor outage history and cause as a method of preventing future outages.

2. Does your utility have a routine inspection and maintenance plan/procedure in place designed to prevent the possibility of service outages? Please explain the plan/procedure.

   We have several periodic maintenance programs in place to identify potential problem areas:

   Pole Inspection
   Underground Facilities Inspection
   Recloser Maintenance program
   Line Patrol by truck
   Helicopter patrol

   These are the majority of our routine inspections with respect to our facilities. Pole inspection is done on a 10-year cycle. Helicopter patrol covers the system every 2 years. URD and overhead line patrol are continually ongoing.

3. Has this plan/procedure changed in the past five (5) years? Please explain the changes and why they were made.

   These programs are continually evaluated for efficiency and accuracy, but have changed little in the past 5 years.

4. Has your utility made any study or analysis as to how successful your inspection and maintenance plan/procedure has been in preventing service outage? Please explain.

   Every time a problem is found we feel it helps lessen the probability of an outage. It is hard to determine precise numbers concerning outage prevention.

5. Does your utility have a vegetation management plan/procedure in place designed to prevent the possibility of service outages? Please explain the plan/procedure.

   We have a ROW program that is on a four-year cycle. This program includes routine trimming and spraying. We also address a problem causing outages or customer requests for trimming no matter where they fall in our cycle.

6. Has this plan/procedure changed in the past five (5) years? Please explain the changes and why they were made.

   This program has had only minor improvement/changes in the last 5 years.

7. Has your utility made any study or analysis as to how successful your vegetation management plan/procedure has been in preventing service outage? Please explain.

   We have not made a specific analysis, but our tree caused outages have been reduced.

8. Does your utility identify/track the age of equipment used in the production and delivery of electricity to the customer? Why or why not?

   We are in the process of collecting data on certain equipment, such as poles. As of now we do not track the age of the equipment as related to reliability because of sheer numbers. We have about 45,000 poles, 10,000 transformers, etc.

9. Could equipment age be used as a leading indicator of potential service outages? Would this be an effective indicator of potential service outages? Please explain.

   Age may or may not be a factor of potential outages. That partially depends on the type of equipment. It is difficult to say if this is an effective indicator of possible outages.

10. Does your utility track equipment used in the production and delivery of electricity to the customer to identify equipment that tends to have a premature or unpredicted failure rate or degraded performance level? Why or why not?

    No. To this point we have not had the time or manpower to track all the pieces of delivery equipment.

11. Could the identification of equipment with premature or unpredicted failure rate or degraded performance level be used as a leading indicator of potential service outages? Would this be an effective indicator of potential service outages? Please explain.

    This *could* be an indicator of potential outages, but would be extremely difficult to track every piece of equipment.

12. Are there any other methods (e.g., infra-red inspections or radio frequency inspections) you carry out to help maintain and/or improve system reliability? Please describe the methods you use.

    Hoosier Energy regularly uses infa-red inspections in our substations. We also use this equipment on our lines, and routinely use it in conjunction with our larger customers on their equipment. Both our G&T and Harrison REMC also use radio frequency. Both these pieces of equipment are used in response to problems, and in routine maintenance.

Setting Performance Standards

1. Does your utility set any type of performance standards relating to service reliability and quality as a method of determining employee and/or division performance for compensation purposes? What are these standards? How are they measured? How do they affect the overall compensation for a (n) employee and/or division?

   Yes. Some of our employees can receive an incentive plan passed on several factors, one of which is response time to outages.

2. Could similar standards be set by the Commission to help evaluate and compare the service quality of Indiana utilities? Please explain why or why not.

   This could probably be done, if everyone figures their statistics the same way. Some weight may need to be given to rural vs. city, etc.

3. If these standards are not appropriate to help evaluate and compare the service quality of Indiana utilities, please suggest some standards that would be appropriate.

   We think these standards will suffice in comparing service qualities among different utilities.

4. To date there has been little or no use of I. C. 8-1-2.5 by utilities to propose performance based rates that would tie utility incentives/penalties to reliability and other measurable performance criteria. Is there a problem with how I. C. 8-1-2.5 is structured that makes it inappropriate or ineffective as a vehicle for performance based rates? Please explain. From your perspective (utility, customer group, other) what are the pros and cons of performance based rates?

   I am not personally familiar with this statute, so I am not sure if it is appropriate or effective, but I am informed that the IURC has chosen not to apply it to distribution cooperatives as requested.
   It would sometimes be difficult to quantify what a utility should have been able to prevent in an outage. For instance a major ice storm would cause major problems on for any utility. The amount of trouble and restoration time may be an indicator of who has kept their system well maintained and who has not.

Safety:

1. Is your utility participating in any EPRI (or other organizations) research projects relating to safety? If yes, please describe the project(s) you are involved in and how it relates to safety issues addressed in this section of the data request.

   No.

2. What actions to ensure public safety are taken, both by the utility and other emergency resources, when a live power line has come down? Please explain the activities from the time a live power line is reported down until it has been repaired or rendered safe.

   Downed power lines are our top priority when we have a report of them. All of the emergency crews we work with (police, fire, etc.) are instructed to treat a downed line as live and keep the public away. Crews are dispatched immediately to insure the line is dead and clear it from any traffic path.

3. In situations where live power lines may be down in multiple locations, how is public safety ensured?

   If we have more locations where lines are down than we have crews working we ask emergency personnel to wait until we arrive. We dispatch multiple crews if necessary.

4. In critical weather situations where widespread areas may experience outages or down power lines, is there any central coordination (beyond each individual utility) of the restoration of service and the repair of down lines? Please explain who does the coordination and what organizations are involved.

   The operations manager is responsible for making sure service is repaired. In widespread outages we work with the respective counties central dispatch to advise them of where we know of problems, and our estimated time of arrival. Whoever is dispatching our crews at the time is responsible for coordination with emergency services.

5. What could be done to improve the public awareness of the hazards that may exist as a result of weather related power outage? How does your utility inform customers of these types of hazards?

   We publish safety articles in our monthly newsletter to our customers. We also give safety demonstrations in local schools. Safety messages are sometimes printed on inserts in our bills. We hold an annual meeting with local Fire Departments and EMS on various safety topics concerning electricity.

6. What is the most typical accident involving utility facilities that happens to utility personnel and to non-utility/customers/the general public? What has your utility done to help try and alleviate these types of accidents?

In our territory vehicles hitting electric poles is the most typical accident. When a pole is hit we look at the placement of that pole, and whenever a new line is engineered we look at the placement of the poles in relationship to the road.

7. What is the current average term of employment for service and line crew personnel? Does your utility provide on-going safety training for your line and service crews? Please explain the types of training these crews receive.

   Our line crews average 18.23 years of service with Harrison REMC (we have 22 people in our line crew). At least once a month we have safety training and/or skill improvement training for the crews. The instructors for this training are personnel from either our statewide association of REMC's or our G&T. We cover topics required by OHSA annually, and several other topics.

8. Commission rules currently require utilities to report accidents resulting in death. Do you think this rule provides useful information to the Commission? Please explain. Do you have any recommended changes that would make this rule more useful? Please explain.

   I suppose these rules are useful. Anytime a death occurs the information should be disseminated to all electric companies with a brief synopsis of what happened. Maybe this will help prevent a repeat accident on some other system.

9. What other organizations or agencies must you report to when there has been an accident, injury or fatality? Please explain what must be reported, under what circumstances and in what time frame from when the incident occurred.

   We report an accident to the police department that has jurisdiction in the area. We report any accident involving injury immediately. Often some other emergency service (police, EMS, etc) is already on scene and aware of the injury.

10. The Commission is aware that in preparation for Y2K utilities developed emergency operating plans (EOP). Does your utility continue to maintain and update an emergency operating plan? What circumstances or conditions is the EOP designed to cover? Is the EOP prepared and/or modified completely by utility personnel or do other organizations or agencies have input to the plan? Please explain how outside sources have input to the EOP. Does your utility routinely run drills on the EOP to check the effectiveness of the plan and to identify areas, which need improvement? Please describe your drilling procedure.

Customer Service:

1. Is your utility participating in any EPRI (or other organizations) research projects relating to customer service? If yes, please describe the project(s) you are involved in and how it relates to customer service issues addressed in this section of the data request.

   No.

2. Please describe your utility's customer service philosophy and how your utility implements this philosophy.

   Our philosophy is the customer comes first. We are one of the few REMC's that still answers the phone with a live person and pass the call on to the appropriate personnel without using a machine. We also use a local person as an after hours answering service to help provide a local touch. A top down approach from all key staff implements this philosophy. All customer service representatives are trained in this approach.

3. How many employees are directly engaged in customer service types of activities and where do they fit in the utility's overall organizational structure? An organizational diagram maybe useful in responding to this question.

   Harrison REMC feels every employee has an impact on customer service.

4. Assuming there are a variety of activities that can be considered "customer service" please describe the different types of activities your utility classifies as "customer service" and how many employees are engaged in each activity.

   Every phone call, customer visit or service order request is a customer service related activity to us. We consider any employee as a customer service representative.

5. Please provide a brief description of the qualifications required by employees engaged in the various customer service activities described in response to the previous question. Have these requirements and protocols changed over the past five years? Please explain.

   We attempt to have qualified employees that we can retain for several years of service. These qualifications vary depending on the specific job.

6. Please describe any equipment and/or facilities that are specifically designed to help the utility to communicate with its customers and to enhance customer service.

   We feel we have up to date hardware and software for our employees. We feel our maps are some of the finest in the state. We are just beginning to put laptop computers in our vehicles.

7. How does your utility evaluate the quality and performance of your customer service activities?

   Monthly we randomly select 30 customers we have had contact with in the last month. They are surveyed as to how they think we have handled their service.

8. Is the compensation of employees, groups of employees or divisions tied to customer service performance? Please explain how this is done and whom this process affects.

   Yes. Some of our employees are can receive an incentive pay. Part of this is based on customer satisfaction.

9. What methods or statistics are used to evaluate customer service performance? Please provide a description of the methods or statistics used.

   Supervisors consistently monitor their employees to insure proper customer service is in place. We also rely on our customer satisfaction surveys to give us an idea of how well we are doing. Being a cooperative with an elected board of directors from our community, we think we have another avenue for customers to voice their concerns.